

## MISCELLANEOUS NOTES

long; stipule 7-8 mm long, pubescent all over even on the cusp, under surface hairy; hairs 1-1.2 mm long, multicellular, uniseriate; cusp 3-4 mm long, pubescent. Leaf 12.6-21.3 x 3.9-8.3 cm, simple, opposite, linear-lanceolate, obovate-lanceolate, or oblong obovate, apex acuminate, base acute or slightly rounded, subcoriaceous, upper surface glabrous, lower surface finely pubescent especially on the lateral nerves and the midrib, petioled; petiole 3-13 mm long, channeled, pubescent; reticulately veined with 10-11 lateral anastomosing nerves joining the midrib. Inflorescence peduncled, pubescent, the lower-most bract is supported by a pair of stipules, trichotomous, flowers 100-200 per head; peduncle 1.5-4 cm long, reddish, pubescent; bract 2-10 mm long, the largest bract leaf-like, others linear, acute. Flowers 4-merous, bisexual, white, flowers in trichasia, all the flowers pedicellate except one or two sessile flowers in the cyme; pedicel 1-3.5 mm long, red, pubescent; bracteole 1.2-2 mm long, linear, acute, pubescent. Calyx tube 1-1.5 mm long, sometimes red, pubescent; lobe 1-1.2 mm long, ovate, acute, pubescent. Corolla tube

1.3-2.1 cm long, glabrous; lobes 4-6 x 2-2.1 mm long, linear-ovate, obtuse; stamens 4 alternating with the corolla lobes; filament 2 mm long, glabrous; anther 4-5 mm long, dorsifixed; stigma 2-3.5 mm long, entire or cleft; style 13.9-24 mm long, glabrous.

*Specimens examined:* Andaman & Nicobar Islands: North Andamans: Arial Bay,  $\pm$  25 m, 5 April 1977, *N. P. Balakrishnan* 5473 (PBL); Arial Bay,  $\pm$  20 m, 5 April 1977, *N. P. Balakrishnan* 5455 (PBL); Lamia Bay to Kalipur,  $\pm$  50 m, 1 April 1977. *N. P. Balakrishnan* 5438 (PBL); Bangladesh: Chittagong Hill Tracts, Sitapahar range, 3 April 1935, *Range Officer* 27 (DD).

### ACKNOWLEDGEMENTS

We thank the Director, National Botanical Research Institute, Lucknow for facilities and for a Junior Research Fellowship to the senior author. Thanks are also due to Mrs. D. Bridson, Royal Botanic Gardens, Kew for comparing the herbarium sheets at K and BM and to Mrs. V. Upadhyya and S. N. Vishwakarma for illustrations.

NATIONAL BOTANICAL  
RESEARCH INSTITUTE,  
LUCKNOW - 226 001,  
January 18, 1985.

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### 38. THREE NEW DISTRIBUTION RECORDS OF *PYRROSIA* MIRBEL. (POLYPODIACEAE) FROM SOUTHERN INDIA

*Pyrrisia* Mirbel. is a complex group of Polypodiaceous ferns earlier known under *Polypodium*, *Niphobolus* and *Cyclophorus*. The genus is mainly distributed in the tropical

regions of Africa, Asia and Australia. Ching (1935) has given a systematic account of 40 species and some varieties from Asia. Beddome (1883) treated the genus under *Niphobolus* Kaulf. and described 13 species of which 4 are from southern India. While studying the ferns of Southern India we came across three species of *Pyrrosia*, not reported earlier from the region.

***Pyrrosia mannii*** (Gies.) Ching in Bull. Chin. Bot. Sci. 1: 55. 1935; Baishya & Rao, Fern & Fern allies of Meghalaya 75. 1982. *Niphobolus mannii* Gies. Farngatt. Niph. 107. 1901. *Cyclophorus porosus* C. Chr. Ind. Fil. 200. 1905 (Partim). *Niphobolus fissus* Hook. Sp. Fil. 5: 48. 1863; Syn. Fil. 351. 1867; Handb. 330. 1883 (Partim). *N. floccigerus* Bedd. Ferns Brit. Ind. Suppl. 22. t. 386. 1876.

Epiphytes. Rhizome creeping with fibrous roots and covered by ferruginous brown ramenta. Rhizome scaly, scales narrow-lanceolate 5-7 x 1-1.5 mm, entire. Fronds monomorphic, articulated to small phyllopodia, close, carnose-coriaceous, narrowly oblanceolate, narrowed at base, gradually decurrent on short stipe, acute at apex, 9-20 x 0.5-1.5 cm, greenish with pitted hydathodes above, brown woolly stellate tomentose beneath, veins obscure. Sori copious, admixed with brown stellate hairs. Sporangia short stalked. Spores oval, yellow.

This species is so far reported only from North India (Ching 1935, Baishya & Rao 1982). It is allied to *Pyrrosia mollis* (Kunze) Ching but can be distinguished by its lanceolate entire rhizome scales and fronds with thicker indumentum. In the case of *P. mollis*, the fronds are densely tomentose and the rhizome scales are lanceolate with ciliate mar-

gins. This is the first report of its occurrence from Southern India.

This is not a common species in the area and is seen in moist shady places on tree trunks in association with moss or on decaying bark of dead trees/branches.

*Specimens examined*: KERALA: Palghat Dt., Karapara Estate Boundary, Nelliampathy R.F., 950 m, 21.12.1980, N. C. Nair 69731.

***Pyrrosia nayariana*** Ching et Chandra in Amer. Fern. Journ. 54(2): 62. 1964.

Epiphytes. Rhizome not creeping, about 3 mm thick, scaly, covered by fibrous roots, rhizome scales brown, 2-3 mm long, lanceolate, acuminate at apex broad at base, margin dentate. Fronds linear-oblongate, thick, coriaceous, hairy above in young stage, glabrous on maturity, with pitted hydathodes, densely hairy beneath with two kinds of stellate hairs. Midrib prominent. Veins obscure. Fertile and sterile fronds alike. Sori copious, covering beneath in the indumentum. Sporangia long stalked. Spores ovate, verrucose.

The species was originally reported from Imphal, Manipur and the present report from Kerala is very interesting from the phytogeographical point of view. This also forms a new record for south India.

This epiphyte is seen in association with moss on tree trunks in moist shady evergreen forest.

*Specimens examined*: KERALA: Cannanore Dist., on way to Tirunalli-Arunapparai, ± 750 m, 9.2.1978. V. S. Ramachandran 53839.

***Pyrrosia nuda*** (Gies.) Ching in Bull. Chin. Brit. Soc. 1: 70. 1935; Baishya & Rao, Fern & Fern Allies of Meghalaya 76. 1982. *Niphobolus nuda* Gies. Farngatt. Niph. 149. 1901. *Cyclophorus nudus* C. Chr. Ind. Fil. 200. 1905. *Polypodium adnascens* Clarke Trans.

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Linn. Soc. II. Bot. 1: 552. 1880 (Partim).  
*Niphobolus adnascens* Bedd. Handb. Fern.  
Brit. Ind. 325. 1883 (Partim).

Epiphytes. Rhizome slender about 2 mm thick, long creeping, compactly covered by scales. Scales pale brown, lanceolate about 4 mm long with deep brown, peltate base, edges ciliate. Stipes about 1-4 cm. sparsely stellate scaly and glabrous with age. Fronds uniform linear-lanceolate, 10-20 × 1-2 cm, hairy with adpressed stellate hairs, thinly fleshy midrib raised. Veins obscure. Sori depressed towards the upper half of the frond, leaving the tips.

BOTANICAL SURVEY OF INDIA,  
SOUTHERN CIRCLE,  
COIMBATORE-641 003,  
January 15, 1985.

Sporangia oval, short stalked. Spores round, dark brown, irregularly grooved.

Ching (1935) reported its occurrence from Burma, Sikkim and Assam. This is the first report of its occurrence from South India.

This may be mistaken for *Pyrrosia lanceolata* (L.) Farwell. Material examined was very limited. In view of this a thorough study of these species is called for.

This is seen on tree trunks in the crevices of moist bark in dense forest but rare.

*Specimens examined*: KERALA: Cannanore Dt., Chandanthode, ± 840 m, 13.7.1978, V. S. Ramachandran 57676.

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ed.). 1976. New Delhi.

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## 39. ADDITIONS TO THE ALPINE FLORA OF TUNGNATH

Tungnath area was previously explored during the years 1977-1978 and a total number of 280 species of flowering plants belonging to 157 genera and 50 families were recorded (Semwal and Gaur 1981). The area was further extensively explored and 53 species of angiosperms have been added to the previous list. The species are arranged according to Bentham and Hooker's system of classification. Specimens were identified in the Herbarium of Botanical Survey of India, Northern Circle, Dehra Dun (BSD) and the voucher specimens are deposited in the Her-

barium of Garhwal University (GUH), Srinagar with Collector's name (J. K. Semwal) and field number.

## ENUMERATION RANUNCULACEAE

*Aconitum violaceum* Jacq. ex Stapf

Erect or decumbent herb with blue flowers. Khamdir, 4400 m. Sept. 1981 (1468).

*Anemone tetrasepala* Royle

Perennial herbs with white flowers. Chak-dhar, 3400 m. July 1979 (1469).